

# Work Order ID 50519

July 14, 2009 7:34:24 AM



Page 1

Item ID: D206-667-101TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning Detail

Start Date: 7/15/09 Start Qty: 1.00



Cust Item ID:

Required Date: 7/21/09 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: *W*

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D206-667-141	Rev C

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA083□2-Turn first side as per Folio FA083□3-File down transition lines smooth.

*a.m 09 - 07 - 16 @*

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

*a.m 09 - 07 - 16 @*

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA083□2-File down transition lines smooth.  
□  
3-Remove sand and plugs

*a.m 09 - 07 - 16 @*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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Page 2

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Item Name: Crosstube Turning Detail

Start Date: 7/15/09 Start Qty: 1.00



Cust Item ID:

Required Date: 7/21/09 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_

Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Q.m 09 - 09 - 16 @

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

27 8 09/07/16

@ 6

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Aug 9-2-16

W/O:		WORK ORDER CHANGES					
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**Work Order ID 50519**

July 14, 2009 7:34:24 AM

Page 3

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Required Date: 7/21/09 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start  
StopSequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

160



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

① H 9-7-16

170



Packaging

Packaging

Packaging

0.00

Memo

Identify and stock in kanban rack ☐ Location: \_\_\_\_\_

0.00

X-TUBE CELL ANN 9-7-16 ①

180



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

09/07/21 JG

H 9-7-17

W/O:		WORK ORDER CHANGES					
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**NOTE:** Date & initial all entries

# Picklist Print

Page 1

July 14, 2009 7:34:23 AM

Work Order ID: 50519



Parent Item: D206-667-101TRNRevC



Parent Item Name: Crosstube Turning Detail

Start Date: 7/15/09

Required Date: 7/21/09

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6001-105RevA		Manufactured	No			110	Each	34.0000	1.0000			
Crosstube, Material												

Am 09-07-16

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	34	
25661	5	
29115	29	

W/O:		WORK ORDER CHANGES					
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**NOTE:** Date & initial all entries



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 50519
<b>Description:</b> Crosstube Assembly (206B High Fwd)		<b>Part Number:</b> D206-667-141
<b>Inspection Dwg:</b> D206-667-141 Rev: B		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.245	/			
	2.074	+0.005/-0.000	2.077	/			
	2.074	+0.005/-0.000	2.079	/			
	2.114	+0.005/-0.000	2.118	/			
	2.154	+0.005/-0.000	2.156	/			
	2.194	+0.005/-0.000	2.199	/			
	2.234	+0.005/-0.000	2.239	/			
	0.110	+/-0.010	0.110	/			
	0.300 x 30°	+/-0.010	0.300 x 30°	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.438	/			
SIDE B	2.240	+0.005/-0.000	2.245	/			
	2.074	+0.005/-0.000	2.077	/			
	2.074	+0.005/-0.000	2.079	/			
	2.114	+0.005/-0.000	2.118	/			
	2.154	+0.005/-0.000	2.156	/			
	2.194	+0.005/-0.000	2.199	/			
	2.234	+0.005/-0.000	2.239	/			
	0.110	+/-0.010	0.110	/			
	0.300 x 30°	+/-0.010	0.300 x 30°	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.438	/			
	93.18	+/-0.020	93.180	/			

<b>Measured by:</b> am	<b>Audited by:</b> S	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 09.07.16	<b>Date:</b> 07/07/16	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	06.10.24	New Issue (P/O D206-667-101)	KJ/JLM	E

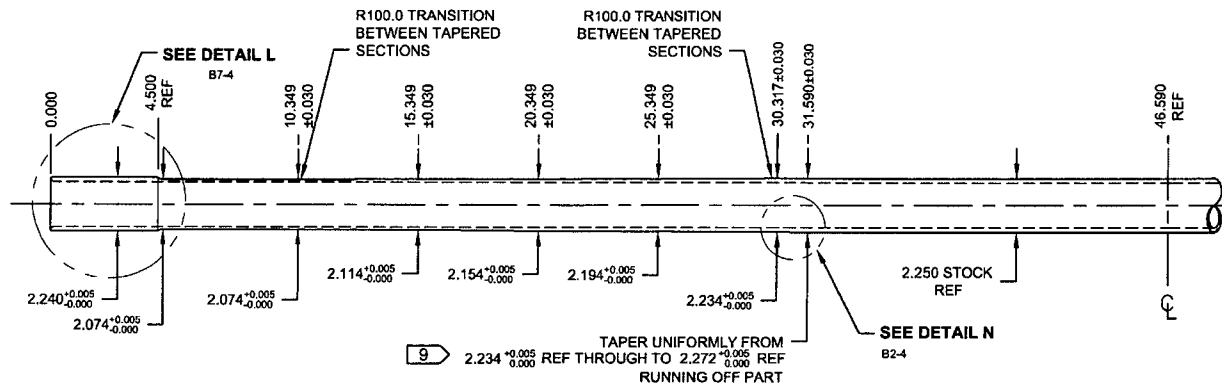
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

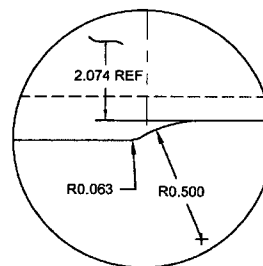
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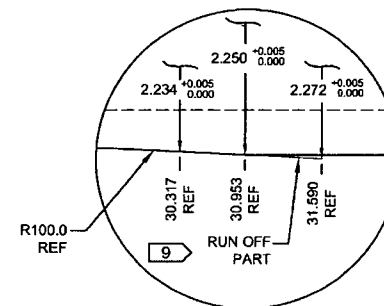
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**C TURNING DETAIL**

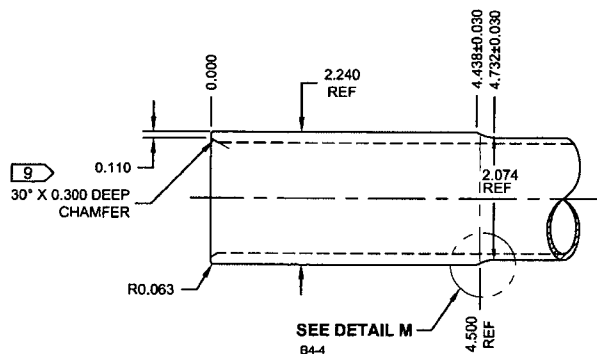


**DETAIL M: CUFF TRANSITION**  
NOT TO SCALE



**DETAIL N: TAPER RUN-OFF**  
NOT TO SCALE

**RELEASED**  
08/11/12



**DETAIL L: CROSSTUBE CUFF**  
NOT TO SCALE

DESIGN	9	<b>DART AEROSPACE LTD</b>
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	JP	DRAWING NO. REV. C
MFG. APPR.	JP	D206-667-141 SHEET 4 OF 4
APPROVED	JP	TITLE SCALE
DE APPR.	JP	CROSSTUBE ASSY (206B HIGH FWD) NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD
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**NOTE:** Date & initial all entries

Item	Qty -141	Part Number	Description
1	X	D206-667-141	CROSSTUBE ASSEMBLY (206B HIGH FWD)
2	1	D6001-105	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

# **GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6001-105  
FINISHED LENGTH = 93.18±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 11.3 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

50519

RELEASED  
06/11/12 11/11

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2859-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN C4-3, C5-3 & D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D206-667-141	REV. C SHEET 1 OF 4
CHECKED	RF	TITLE CROSSTUBE ASSY (206B HIGH FWD)	SCALE NTS
MFG. APPR.	RF	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
APPROVED	RF	DATE 08.11.06	

# Dart Aerospace Ltd

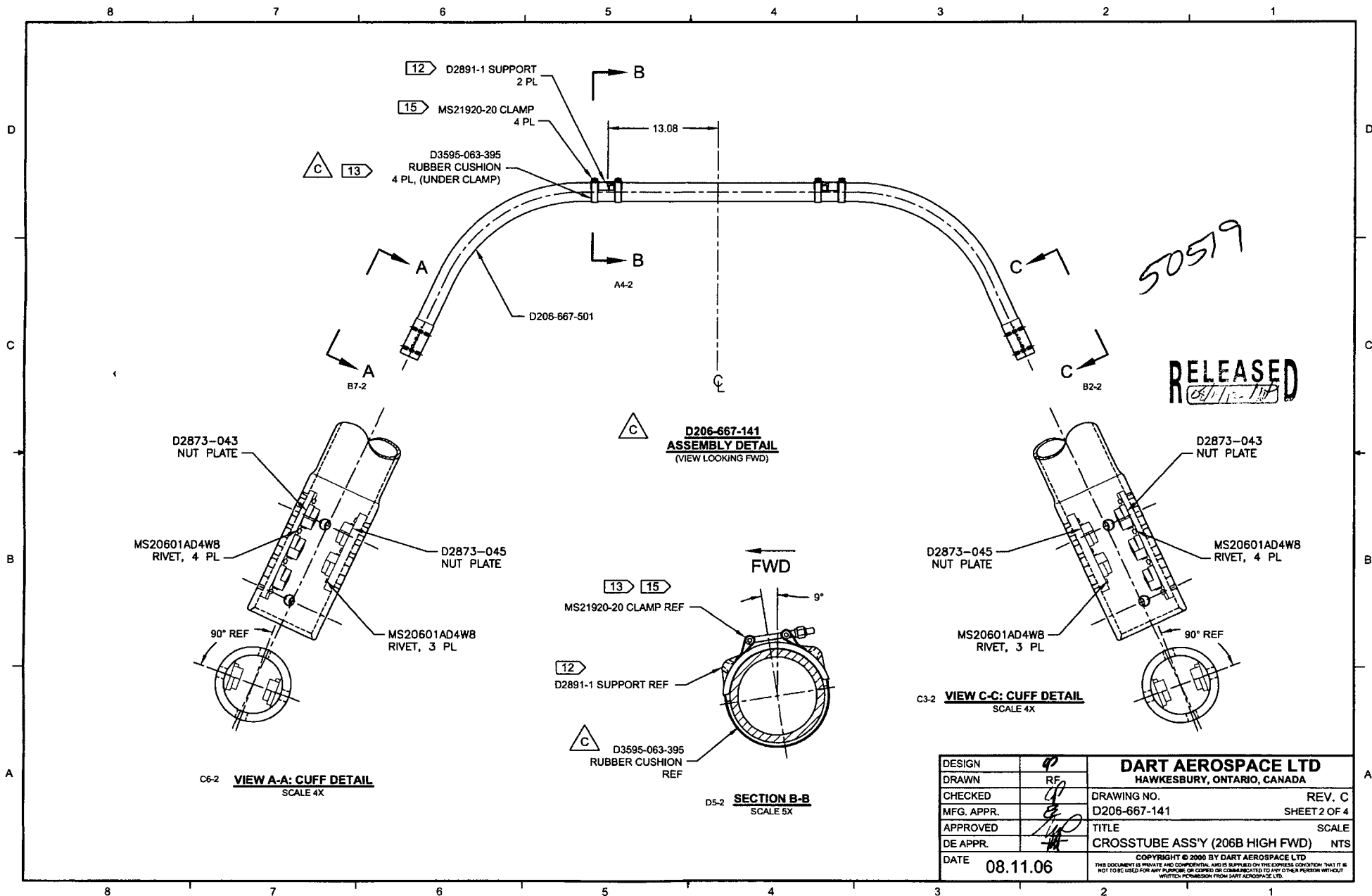
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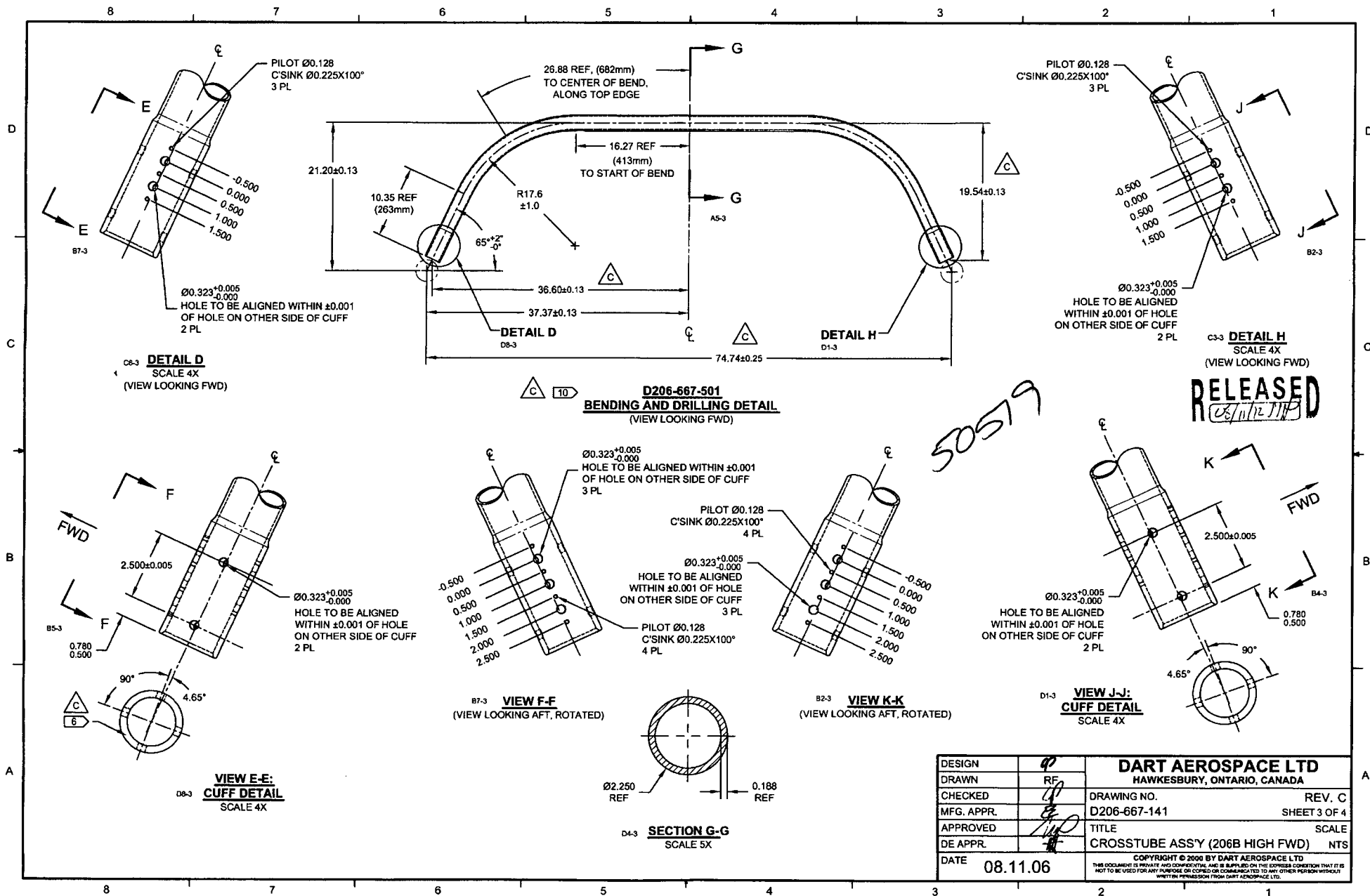
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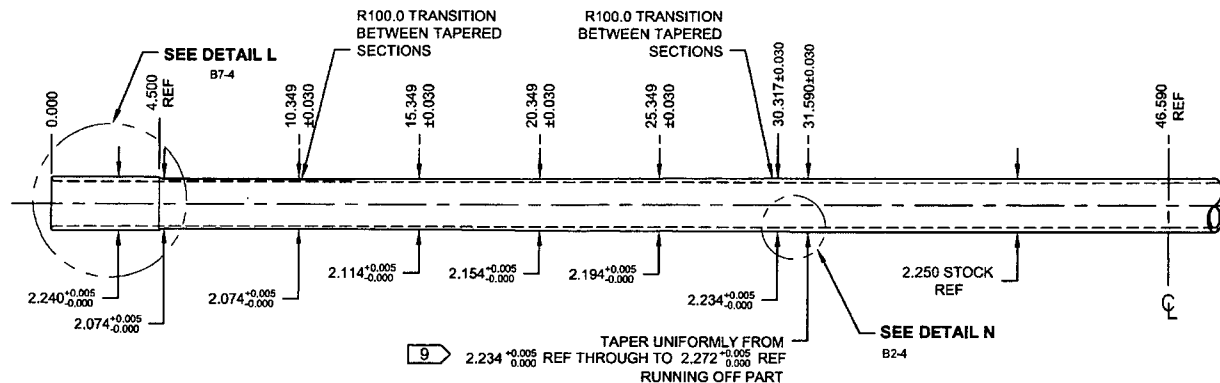
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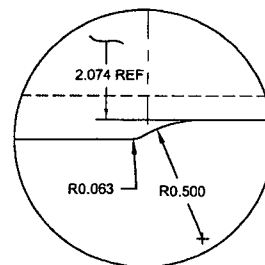
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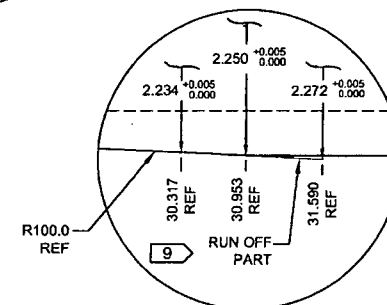
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**TURNING DETAIL**

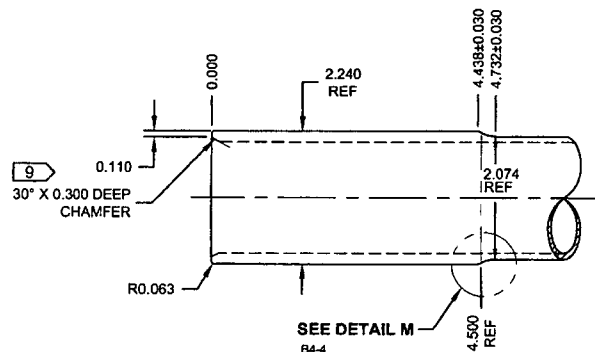


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NOT TO SCALE

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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. C
MFG. APPR.	JP	D206-667-141	SHEET 4 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASSY (206B HIGH FWD)	NTS
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